

Appl. No. 10/616,558

Reply to Office Action of March 31, 2006

REMARKS

In response to the above-identified Office Action, Applicants amend the Application and seek consideration of the following remarks. In this Office Action, Applicants amend claims 1, 8, 14, 17, and 20. Applicants do not cancel or add any new claims. Accordingly, claims 1-14 and 17-20 remain pending in this Application.

I. Allowable Subject Matter

As an initial matter, Applicants kindly direct the Examiner's attention to the Office Action mailed on November 3, 2005. In this Office Action, the Examiner stated that "claims 8-13 and 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." Applicants note that claims 8 and 17 were not properly amended in Applicants' Response to Office Action mailed on December 22, 2005, which response omitted some of the claim elements of the base claim. As such, Applicants have amended claims 8 and 17 in the present Response to Office Action to include all of the limitations of the base claim and any intervening claims. Therefore, Applicants respectfully submit claims 8-13 and 17-19 are in condition for allowance.

II. Claims Rejected Under 35 U.S.C. § 112

The Examiner rejects claims 17-19 under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential cooperative relationships, such omission amounting to a gap between the necessary structural connections. As noted above,

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Applicants amend claim 17 to place them in condition for allowance. Therefore, Applicants submit claims 17-19 are complete. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 17-19.

III. Claims Rejected Under 35 USC § 103

The Examiner rejects claims 1-2 and 20 under 35 U.S.C. § 103(a) as being obvious over U.S. Patent Application Publication No. 2003/0052016 filed by Lin et al. ("*Lin*") in view of Japanese Patent No. JP03009273 issued to Kurumiya et al. ("*Kurumiya*"). Applicants amend claims 1 and 20.

To render a claim obvious, the cited references must teach or suggest all of the elements of the rejected claim. Among other elements, claim 1 defines "a method for controlling the heating of an oxygen sensor mounted in an engine of motor vehicle comprising the steps of: ...measuring capacitance between two elements of an oxygen sensor to determine a presence of a liquid." Applicants submit the combination of *Lin* and *Kurumiya* fails to teach or suggest at least these elements of claim 1.

In making the rejection, the Examiner states that *Lin* "does not disclose measuring capacity between the electrode and the shell" (Paper No./Mail Date 20060311, page 3). In reviewing *Lin* in its entirety, Applicants agree with the Examiner that *Lin* fails to teach or suggest measuring capacitance between two elements of an oxygen sensor. Therefore, *Lin* fails to teach or suggest all of the elements of claim 1. The Examiner relies on the disclosure of *Kurumiya* to cure the defects of *Lin*, however, Applicants submit that *Kurumiya* fails to cure such defects.

In characterizing *Kurumiya*, the Examiner states, "*Kurumiya* discloses a heater

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'1c2', an oxygen sensor 'S', a capacitance measuring circuit 14 and a comparator-microprocessor 15 (Abstract)" (Paper No./Mail Date 20060311, page 3). In reviewing the disclosure of *Kurumiya*, *Kurumiya* states that the purpose of the capacitance measuring circuit is "to surely detect and display a disconnection and a normal condition." By contrast, claim 1 recites the elements of "measuring capacitance between two elements of an oxygen sensor to determine a presence of a liquid" (emphasis added). Therefore, *Kuruyama* fails to cure the defects of *Lin* because a capacitance measuring circuit to detect and display a circuit connection/disconnection is not the same as measuring capacitance between two elements to determine a presence of a liquid. The presence of a liquid would not be detected in *Kurumiya* because a liquid may be present independent of whether the circuit is connected or disconnected.

The failure of the combination of *Lin* and *Kurumiya* to teach or suggest all of the elements of claim 1 is fatal to the obviousness rejection. Therefore, claim 1 is not obvious over *Lin* in view of *Kuruyama*. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 1.

Claim 2 depends from claim 1 and includes all of the elements thereof. Therefore, Applicants submit that claim 2 is not obvious over *Lin* in view of *Kurumiya* at least for the same reasons as claim 1, in addition to its own features. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 2.

With reference to the rejection of claim 20, Applicants submit that claim 20 recites the elements of "to determine a presence of a liquid" similar to claim 1 discussed above. Therefore, Applicants submit that the discussion above regarding the combination of *Lin* and *Kurumiya* failing to teach or suggest all of the elements of claim 1 is equally

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applicable to similar elements recited in claim 20. Thus, claim 20 is not obvious over *Lin* in view of *Kurumiya*. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 20.

Claims 3-5, 8-14, and 17-19 stand rejected under 35 U.S.C. § 103(a) as being obvious over *Lin* in view of *Kurumiya* and further in view of U.S. Patent No. 6,084,418 issued to Takami et al. ("*Takami*"). With respect to claims 8-13 and 17-19, Applicants noted above that these claims have been amended to place them in condition for allowance. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 8-13 and 17-19.

With reference to the rejection of claims 3-5, these claims depend from claim 1 and include all of the elements thereof. Particularly, claims 3-5 include the elements of "to determine a presence of a liquid." Applicants have addressed above the defects of the combination of *Lin* and *Kurumiya* and submit the above discussion is equally applicable to claims 3-5. Therefore, the combination of *Lin* and *Kurumiya* fails to teach or suggest all of the elements of claims 3-5. The Examiner relies on *Takami* to cure the defects of *Lin* and *Kurumiya*, however, Applicants submit *Takami* fails to cure such defects.

In making the rejection, the Examiner does not cite *Takami* as disclosing the elements of "to determine a presence of a liquid" as recited in claims 3-5. Moreover, in reviewing *Takami* in its entirety, Applicants are unable to discern any sections of *Takami* that teach or suggest such elements. Therefore, *Takami* fails to cure the defects of *Lin* and *Kurumiya*.

The failure of the combination of *Lin*, *Kurumiya* and *Takami* to teach or suggest all of the elements of claims 3-5 is fatal to the obviousness rejection. Therefore, claims

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3-5 are not obvious over *Lin* in view of *Kurumiya* and in further view of *Takami*. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 3-5.

With respect to the rejection of claim 14, claim 14 has been amended to include the elements of "to determine a presence of a liquid" similar to claims 3-5 discussed above. Therefore, Applicants submit that the discussion above regarding the combination of *Lin*, *Kurumiya* and *Takami* failing to teach or suggest at least measuring capacitance to determine a presence of a liquid is equally applicable to similar elements recited in claim 14. Therefore, the combination of *Lin*, *Kurumiya* and *Takami* fails to teach or suggest all of the elements of claim 14. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 14.

Claims 6-7 stand rejected under 35 U.S.C. § 103(a) as being obvious over *Lin* in view of *Kurumiya* and further in view of U.S. Patent Application Publication No. 2003/0010088 filed by Tomisawa ("*Tomisawa*"). Claims 6-7 depend from claim 1 and include all of the elements thereof. Particularly, claims 6-7 include the elements of "to determine a presence of a liquid." Applicants have addressed above the defects of the combination of *Lin* and *Kurumiya* and submit the above discussion is equally applicable to claims 6-7. Therefore, the combination of *Lin* and *Kurumiya* fails to teach or suggest all of the elements of claims 6-7. The Examiner relies on *Tomisawa* to cure the defects of *Lin* and *Kurumiya*, however, Applicants submit *Tomisawa* fails to cure such defects.

In making the rejection, the Examiner does not cite *Tomisawa* as disclosing the elements of "to determine a presence of a liquid" as recited in claims 6-7. Moreover, in reviewing *Tomisawa* in its entirety, Applicants are unable to discern any sections of *Tomisawa* that teach or suggest such elements. Therefore, *Tomisawa* fails to cure the

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defects of *Lin* and *Kurumiya*.

The failure of the combination of *Lin*, *Kurumiya* and *Tomisawa* to teach or suggest all of the elements of claims 6-7 is fatal to the obviousness rejection. Therefore, claims 6-7 are not obvious over *Lin* in view of *Kuruyama* and in further view of *Tomisawa*. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 6-7.

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CONCLUSION

In view of the foregoing amendments and remarks, it is now believed that claims 1-7 and 14 distinguish over the cited references, either taken alone or in combination, and are in condition for allowance. In addition, Claims 8 and 17 have been amended as suggested by the Examiner so that Claims 8-13 and 17-19 are now also believed to be in condition for allowance. New independent Claim 20 is believed to distinguish over the cited references and to also be in condition for allowance. Allowance of Claims 1-14 and 17-20 is therefore earnestly requested.

If for some reason Applicant has not requested a sufficient extension and/or has not paid a sufficient fee for this response and/or for the extension necessary to prevent abandonment on this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 50-2091 for any fee which may be due.

Respectfully submitted,

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